ECOSYSTEM STATUS INDICATORS
Physical Environment
GULF OF ALASKA

Pollock Survival Indices –FOCI
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Wind mixing at the southwestern end of Shelikof Strait

Rainfall is only one indicator of early-life-stage pollock survival. FOCI hypothesizes that a series of indices (proxies for environmental conditions, processes and relationships), assembled into a predictive model, provides a method for predicting recruitment of walleye pollock. A time series of wind mixing energy (W m^{-2}) at [57°N, 156°W] near the southern end of Shelikof Strait is the basis for a survival index wherein stronger than average mixing before spawning and weaker than average mixing after spawning favor survival of pollock (Megrey et al. 1996). The wind-mixing index is produced from twice-daily surface winds created from a model (Overland et al. 1980) using NCEP reanalyzed sea-level-pressure fields. The model is tuned to the region using information determined by Macklin et al. (1993). A time series of the wind-mixing index is shown in Figure 10. As with precipitation at Kodiak, there is wide interannual variability with a less noticeable and shorter trend to increasing survival potential from 1962 to the late 1970s. Recent survival potential has been high relative to the early years of the record. Except for March 2003 and March 2005, monthly averaged wind mixing in Shelikof Strait has been below the 30-year (1962-1991) mean for the last eight January through June periods (1998-2005). This may be further evidence that the North Pacific climate regime has shifted in the past decade.

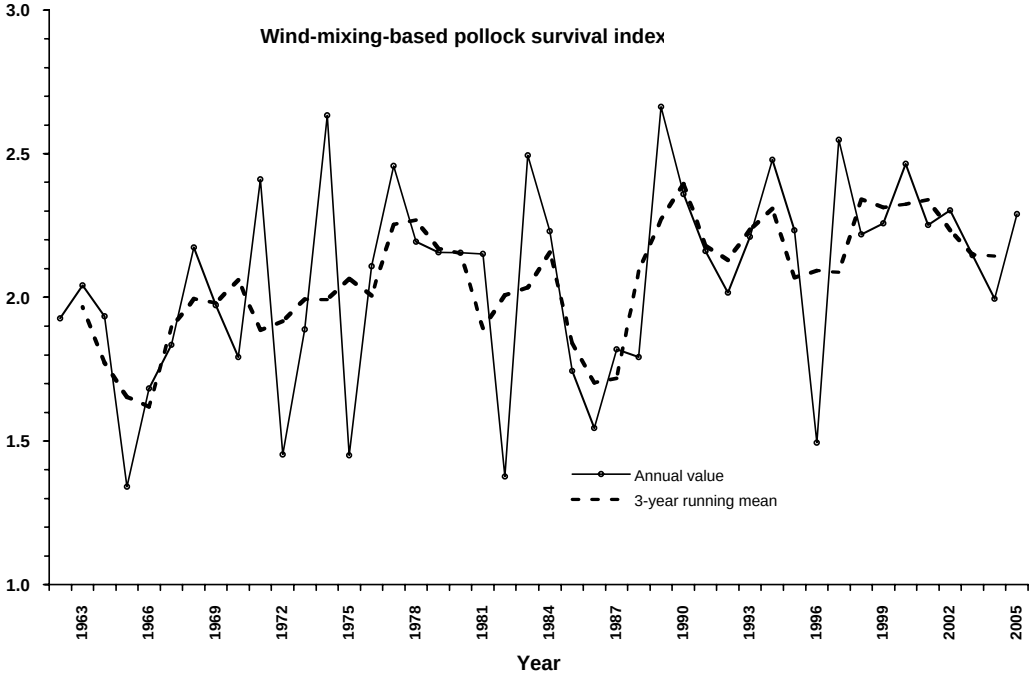

Figure 10. Index of pollock survival potential based on modeled wind mixing energy at [57°N, 156°W] near the southwestern end of Shelikof Strait from 1962 through 2005. The solid line shows annual values of the index; the dashed line is the 3-year running mean.